DOCUMENT RESUME

ED 370 970 TM 021 524

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TITLE The Process of Understanding: Protocol Analysis and Musical Composition.
PUB DATE Apr 94
NOTE 9p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 4-8, 1994).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Audiotape Recordings; Comprehension; *Creative Activities; Knowledge Level; *Musical Composition; Music Techniques; *Problem Solving; *Protocol Analysis; Research Methodology; *Writing Processes
IDENTIFIERS *Funded Experience; *Music Composers; Reflective Thinking

ABSTRACT

This study investigated the musical thinking of two composers through the use of concurrent protocol analysis and examinined their problems, funded experience, and reflective thinking. The objective was to determine the extent to which there is an observed or implicit paradigm of reflective thinking in the thinking of a practicing composer. The two participants, who were nationally known and currently publishing composers, used their customary procedures and recorded their verbalizations about the process on tape. Analysis reveals that they alternated between being deeply involved in composing music and talking about composing music. Both subjects used academic knowledge, practice-based experience, feelings, and imagination to varying extents. However, funded experience as a composer was the predominant form of experience used by both. Reflective thinking was present, but its presence was not linked to any particular type of funded experience or problem. (Contains 18 references.) (SLD)

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The Process of Understanding: Protocol Analysis and Musical Composition.

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ED 370 970

OVERVIEW

This study investigated the musical thinking of two composers through the use of concurrent protocol analysis. I examined the problems, funded experience and reflective thinking used by these composers as they worked on compositions. As a result of the resurgence of interest in a variety of forms of thinking such as critical and reflective thinking, I was particularly interested in investigating the extent to which the participants used reflective thinking when composing, if at all.

Shulman (1987) suggested a need for research in one area of the knowledge base for teacher education: the accumulated wisdom of practice from gifted teachers. The music educator must assume the roles of critic, arranger, conductor, theorist/composer, and performer when acting as translator of content knowledge. The collection of the analyzed wisdom of practice becomes the optimal basis for teaching musical thinking skills to prospective music educators.

In much of the literature written by and about composers, the composer appears as a recipient of divine inspiration, the practitioner of a time-honored craft that defies close description. This view of composition, still promulgated by many practicing composers, is of little assistance to teachers who wish to engage students in the creative process of composition. Protocol analysis is one lens we can use to gain insight into the layers and convolutions of the musical thinking process used by composers.

OBJECTIVE

The objective of this study was to explore the extent to which there is an observed or implicit paradigm of reflective thinking in the thinking of a practicing composer. What problems did the composers encounter? What types of funded experience were employed when thinking about problems? Did the composers use any or all of the seven phases of reflective thinking described by John Dewey?

THEORETICAL FRAMEWORK

I became interested in the process of composition as a result of on-going protocol analyses of arrangers, performers, and conductors, in which the participants were asked to produce a concurrent protocol while conducting, practicing, studying a score, or rehearsing an ensemble (Whitaker, 1989). The protocols were analyzed for evidence of reflective thinking as described by John Dewey (1933). For the purpose of examining the literature and the transcripts, the Deweyan paradigm has three components: 1) the recognition of a problem; 2) selected dimensions of funded experience; and 3) the reflective process itself,

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including statement of the problem and statements inferred to be evidence of the thinking process involved in consideration of the problem. Four broad categories of funded experience were used to identify and classify the types of funded experience: academic knowledge, feelings, practice-based experience, and imagination. The result of the identification and extraction of statements was in the form of three lists: problem statements without any associated statements, funding statements, and intact problem statement groups. The wording of each problem statement group was examined for evidence of Dewey's seven phases of the reflective thinking process: prereflection, suggestion, intellectualization of the problem, creation of a hypothesis, reasoning, hypothesis testing, and post reflection. Results of the analysis are presented as annotated lists of statements and groups of statements.

The extensive body of research by proponents of protocol analysis in fields other than music education is focused by the work of Ericsson and Simon (1993). The use of protocol analysis has extended to such areas as the solution of mathematical problems (Adams, 1991; Thompson, 1986; Rebovich, 1986) and student reading strategies (Krueger, 1986; Murphy, 1987). In the largest body of research, that of English composition, researchers have used concurrent protocol analysis to investigate problem definition by writers, the use of silence, planning and revision (Schmittauer, 1987; Mattingly, 1986; Johnson, 1990; Rachwitz, 1986). The body of seminal work on the cognitive processes in composition is comprised of the work of Flower and Hayes (1977, 1980, 1981a, 1981b, 1981c).

Two research studies using concurrent protocol analysis have been done in music education during the past five years, based on the theoretical framework described by Dewey (1933) as reflective thinking. Richardson (1988) and Whitaker (1989) created paradigms for the ways that the music critic, performer, conductor, and arranger process information during a musical experience. Richardson analyzed a concurrent protocol produced by a music critic as he attended a concert. Richardson derived a paradigm of musical thinking composed of a series of distinct, interactive functions: expectation, comparison, prediction, and evaluation. She characterized these functions as being recursive in nature, occurring continually as the critic is engaged in the musical experience. (Richardson, 1988).

Whitaker (1989) used concurrent protocol analysis to investigate the extent to which two instrumental performers, two instrumental conductors, and two arrangers used reflective thinking when making decisions about musical problems. The protocols were created in typical situations for each composer, such as when studying scores, simulating a rehearsal, practice session or performance, and during an actual practice session, rehearsal, or arranging session. The thinking of the composers could be characterized as containing evidence of Dewey's description of reflective thinking. Reflective thinking did not appear to be tied to any particular type of problem or form of funded experience; it appeared in a variety of forms in based on the fund of experiences each individual brought to the data collection sessions. In both studies, utilizing the Deweyan description of reflective thinking was useful due to the inclusion of

feeling, imagination, and funded practical and academic experience as part of the nature of musical thinking.

TECHNIQUES and DATA SOURCE

1. The two participants were nationally-known, currently publishing composers of instrumental and choral music for students ranging from junior high to professional performance levels. The composers selected their own settings and used their customary procedures.
2. Consistent with the production of concurrent verbalization (Ericsson and Simon, 1993), the participants were instructed to "Say anything that comes to mind during a composing session." The participants were asked to keep the tape recorder on for as long as they felt comfortable with the verbalization: each decided on the length and frequency of the recording sessions. One composer decided to record his work on two different pieces, separated by each other by several months. The other composer elected to record his work on several movements of the same piece during a two month time period.
3. Analytical procedures followed a sequence of problem identification, selection of episodes that could be labeled as problem statement groups, and analysis of the groups for evidence of the seven phases of reflective thinking. All of the statements were examined for evidence of funded experience in the forms of academic experience, practical experience as a composer, feeling, and imagination.
4. The transcripts and lists of single statements and problem statement groups were given to two experts in the field of musical thinking and protocol analysis to consider independently.

FINDINGS

The analysis of the transcripts revealed that the composers alternated between two positions: being deeply involved in composing music and talking about composing music. One composer described writing music as a process of "coming up against walls and figuring out ways over them"; the second subject succinctly described one part of the compositional process as being one of "bang [on the piano] and write."

In different ways, the composers addressed the process of making tapes and their experiences while composing music:

> Composer 1:
> Somehow, in the process of making the tape, I know this sounds a little incredible but it is true, I lost whatever thread I was trying to keep in my head. I guess it suggests to me is that probably so much is going on internally at the time that you're composing that when you're asked to vocalize about it, somehow you lose track, maybe, of the other things that you were doing.

This may be construed as an example of the cognitive overload Ericsson and Simon described as interfering with verbalization.

> Composer 2:
> While I was out, some things occurred to me. As I'm writing all this stuff, you're not really getting the composition process here. The composition process goes on in my head all the time, over a long period of time. When I sit down at a piano, I'm sort of filling in details of forms and styles that have already come to mind and have already developed and those are things that you can't really get down on tape because they happen when I'm riding the train the in morning or when I'm walking down the street or while I'm buying groceries or while I'm sitting in a bar listening to somebody else's music.

The composition process occurred in different natural settings and used different procedures: one subject was creating and filling in a sketch, the other was working without a sketch using ideas presumably developed, as he described above, outside the data-collection setting. However, there is a discrepancy between the subject's self report of what he said that he did and what happened during the taping session: the subject appeared to be generating musical ideas as he went along, "banging and writing", "sitting and improvising" rather than developing ideas he had stored in long term memory.

Both transcripts contained digressions from the task of composing, or even from talking about composing music. One of the composers spoke at length about good and bad music and the occasional necessity of writing music to fill in the space of a piece:

> Manny Farber, who is a film critic...proposed that there is white elephant art in which things were very well made and everything fit perfectly and was very polished, and he thought it resembled nothing so much as one of those white elephants that you'd find in a second-hand store. Basically it is just a hunk of well-modulated space, and a lot of music comes across to me that way...

The second composer digressed from his discussion of composition and from creating music to mention his intolerant neighbors, a finger injury, and the unfortunate necessity of playing at funerals.

Subsequent analytical procedures included problem identification, selection of episodes that could be labeled as problem statement groups, and analysis of the groups for evidence of the seven phases of reflective thinking. All of the statements were examined for evidence of funded experience in the forms of academic experience, practical experience as a composer, feeling, and imagination. The types of problems encountered by the subjects differed in each taping session, from piece to piece, and from each other. Examples of problem statements include:

...it is somewhat of a challenge to arrive at an appropriate harmonic sort of background for this.

The problem is that the bass line isn't doing much, and the middle line

Time to add something to the left hand here - it needs something else.

The problem now is...the last phrase isn't quite right.

Funded experience statements were in the form of single statements and statements embedded in the problem statement groups. The transcript analysis revealed that both subjects utilized academic knowledge, practice-based experience, feelings, and imagination to varying extents when composing. However, funded experience as a composer was the predominant form of experience used by both composers. Some examples of funded experience statements are:

Academic: It's a theme that was actually written by Messiaen in his own peculiar alphabet - what he does is spell out words with musical notation.

Experience: You just do repetitive things and then you build and it works real well and people like it and church organists never understand it but they don't have to as long as they play it.

Feeling: I hate starting new things.
It's funny how the mood has changed

Imagination: Then we need something very snarly and low
I can imagine feeling that way

Each problem statement group was examined for evidence of some of the phases of reflective thinking. Some problem statement groups were categorized as examples of non reflective thinking, as the subject followed a statement representative of a perceived difficulty by a solution. The non-reflective thinking present in the following problem statement groups is determined by the absence of a suspension of decision: the subjects recognized a problem and generated an immediate solution.

Problem Hmm...the problem now is...the last phrase isn't quite right.
(*plays*)
That's a little closer. Change the sequence there.
(*plays*)

Problem Now I wonder what key it ought to be in here.
(*plays*)
B flat it is.

Continued examination of the problem statement groups resulted in the discovery of the employment of a variety of forms of reflective thinking: each subject engaged in all seven phases of reflective thinking in response to at least one perceived problem or difficulty. The composer creating the sketches seemed inclined to use more reflective thinking throughout than the composer writing directly at the keyboard. The more extensive consideration of a problem can be seen in the following problem statement group, which has been categorized as a group containing evidence of six phases of reflective thinking: 1) prereflection, (recognition of a problem); 2) suggestion (suspension of decision); 3) intellectualization of the problem through funded experience; 4) creation of a hypothesis; 5) elaboration of the hypothesis through reasoning; and 6) hypothesis testing. The only absent phase is: 7) post reflection on the solution, as the subject elects to leave the problem unresolved. The numbers in the analyzed passage indicate the phase, and the abbreviations indicate the type of funded experience employed.

Problem Thinking about harmony, I have two alternative ways of harmonizing this melody.

(2) (exp) Part of the problem is that it is for oboe and harp, this section of the piece and the harp is limited to seven notes at a time, which of course can be changed when you have a break for a pedal change.

(3) (exp) But it does limit the palate somewhat, so I'm sketching this while trying to figure out how, which of these seven notes are going to be useful to start out with trying another option here.
(exp) Back to the first option...there is something I don't like about the one I just played. this area where...
(acad) is somewhat clichéd and sort of hard to tell sometimes because it has to do with a clear sort of, older, more tonal sense of voice leading.
(acad/exp) I think that this piece is probably very tonal in some aspects, but I'm trying to avoid things that have that
(*plays two chords*)
that clear sort of relationship, so now some solution has to be devised for which how, if I like that option better, how to change it in such a way that that cliché is avoided.

(4) Maybe it involves changing, switching the last two notes of that figure, let's hear how that sounds.

(5) (exp) I don't particularly like parallel fourths and that's what ends up there.

(imag) Right now I'm trying just to get a sense in my ear, which is a real problem.

(6) (exp) Try out the first solution. At the moment I'm sort of gravitating toward that.

(7) (exp) Hmm...sometimes when I get in this position it's hard to decide between two options.

(exp) It's probably a good time to review other things that still need work...in this case, I'm not sure I'm ready to continue working on this one.

A common thread that was inferred from the verbalizations of the participants was the necessity of a mental conception of a piece, a template that served as the focus for all subsequent activities. Any problems or difficulties experienced by the subjects are of their own representation within the situation, what Flower and Hayes refer to as "private, inner representations" of a problem (1980, p. 22). These findings were consistent with the earlier examination of the thinking of conductors, arrangers, and performers.

Reflective thinking did not appear to be tied to any particular type of problem or form of funded experience; it appeared in a variety of forms based on the fund of experiences each individual brought to the data collection sessions. The Deweyan description of reflective thinking was useful due to the inclusion of feeling, imagination, and funded practical and academic experience as part of the nature of musical thinking.

The results of this analysis presented clues about the thinking process used by composers consistent with those found in the earlier protocol analysis studies: 1) each individual brings a particular web of funded experience to a situation and 2) uses this experience to identify and consider problems. Funded experience structures the problem in the mind of the individual and directs the subsequent use of reflective or non-reflective thinking. Reflective thinking was present in the transcripts, but its presence was not linked to any particular type of funded experience or problem.

EDUCATIONAL IMPORTANCE

The Deweyan description of reflective thinking is the foundation for a theoretical model of musical thinking due to : 1) Dewey's description of a combination of intellectual and affective components, and 2) the recursive nature of thinking as evidenced by the composers' use of a variety of forms of funded experience in all phases of the thinking process. The process of developing and piloting curricular initiatives in musical composition can be based on the beginnings of a theoretical foundation for teaching musical thinking that illuminates the layers of concern that practicing composers use when addressing musical problems.

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